

## HVAC SPECIFICATIONS

shall be free from defects in workmanship and materials for a period of 12 months after final acceptance and shall meet all local and state codes. All work or materials discovered within this period shall be repaired by the Contractor at no additional cost to the Authority.

Examine the site of the proposed work to determine the existing conditions and examine the Contract Drawings and Specifications to call for finished work ready for operation. All materials shall be new and of first-quality unless otherwise specified. Incidental accessories or details not shown but necessary to complete and perfect, and in all respects ready for operation, even if not specified, shall be provided by the Contractor at no additional cost to the Authority. Drawings are generally diagrammatic and are intended to convey the scope of general arrangement of ductwork and pouches, and induction units, registers, utilities, etc. that are damaged during construction period, to the Contractor's negligence they shall be repaired or replaced and left in a condition satisfactory to the Engineer.

Accessories shall be architectural reflected ceiling plans. Registers, etc., penetrating rated walls, shall not exceed 1/2" in thickness. Perimeter shall be closed with mineral wool or equivalent. Perimeter shall be closed with escutcheons on both sides of this construction as required by Section 5 of N.Y.C. Building Code.

Registers shall be furnished, installed and fabricated in accordance with the SMACNA Low Velocity Duct Construction Standards Manual, 1984 edition. All square elbows shall be provided with 4" centers. Provide access doors at all fire and smoke compartments. Registers shall be equipped with volume controllers. Flexible connectors shall be 7" unless otherwise indicated on drawings. Registers with hangers secured to structural steel above and below. Install additional seal as required. Seal all joints with 3M Co. 800 sealant and stainless steel ideal.

Registers shall be as per latest SMACNA Standards. Registers shall be furnished with flexible duct connection that penetrates the 2 hr. rated wall. Install new 4", 26 gauge galvanized steel. Seal all joints with 3M Co. 800 sealant and stainless steel ideal. A maximum length of 4' - 0" of flexible ductwork shall be permitted in induction units.

## DIFFUSERS

Registers shall be manufactured by Anemostat-Waterloo or an approved equal. Registers shall be white enamel.

Registers shall be Model #52V0  
Registers shall be Model #53HND  
Registers shall be Model #53HND  
Registers shall be Model DF with No. 41 core pattern (4-way)

## PACKAGING UNIT

A packaged air conditioning unit. Unit shall be complete with control, filters, compressor, evaporator coil, condenser fan and other system components required to provide proper operation in the space designated on the Contract Drawings. Filter shall be listed; 45% efficiency. Registers shall be furnished with the following accessories:

REGISTER	EXTERNAL S.P.	TOTAL COOLING CAP. (BTU)	AUXILIARY COOLING WATER GPM	MODEL NO.	TOTAL WT.	EER
1	1	84,000	20	BA008	770 lbs.	10.4

Registers shall be for 460 volts.

Registers shall be factory run, tested and rated in accordance with ARI standards. Registers shall be complete with water regulator valve. Valve shall be rated for pressure. Registers shall be similar or equal to Carrier Corporation and rated at 150 lbs.

## PIPING AND ACCESSORIES

## PIPING

## A. Test Requirements (Aux. Cooling Water)

Opening Pressure: 125 PSIG  
Operating Temperature: 65 F - 65 F  
Hydrostatic Test Pressure: 1.5 x Operating Pressure  
Duration of Test: 2 hours

Isolate equipment, controls, instruments and valves from the piping system during hydrostatic tests.

## B. Piping &amp; Fittings

System	Pipe	Fitting
Aux. Cooling Water	Black Steel Pipe, Conforming to ASTM A106 Schedule 40 Grade B	2-1/2" cast iron screwed 250 lb. class

A.C. Unit Condensate Drain	Copper ASTM B-38 Hard Temper Type (L)	Wrought Copper Solder Joint 5 ANS 16.18
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Vent auxiliary cooling water piping at all high points.

## C. Accessories

- Unions for auxiliary cooling water service shall be equal to 250 lb. class, malleable iron with Grinnell Figure 554, U.L.
- Nipples 6" length or less shall be extra heavy and shall be formed from material having the same quantities as the pipe. Close nipples shall not be used.
- Braided type flexible connector shall be Hydrant Hose and Control Inc., (VICO) Model HFP Style NE Max. 200 PSIG or approved equal.

## D. Soldered Joints

95-5 Tin Antimony Solder having a melting point greater than 450 F. Excess solder shall be removed while still in a molten state. A fillet left at the face of the fitting.

## E. Thermometers

- Thermometers for piping shall be of the "all purpose" (universal), separate socket, industrial type with #304 stainless steel extension neck wells.
- The thermometer for auxiliary cooling shall operate at 0 - 160 F range and shall include a sufficient safety margin at either end.
- Thermometers shall be manufactured by Albert Weiss, Mekler Instrument Co., Ascroft or approved equal.

## F. Pressure Gauges

- Pressure gauges shall be of the bourdon tube spring type with 4-1/2" dial sizes. Gauges shall have black aluminum cases with black numbers on white background. The gauges shall be as manufactured by Albert A. Weiss, Mekler Instrument Co., Ascroft or approved equal.
- The pressure range for the auxiliary cooling, shall be 0 F - 300 F PSI and the Bourdon tube shall be bronze.

## G. Strainers

Strainers shall be similar and equal to those manufactured by Mueller Specialty Co. Screwed "Y" strainers for pipes 2" and smaller shall be 250 lb. No. 11. The screens for the strainers shall be stainless steel. Strainers shall be provided with capped blowdown valves.

## H. Sleeves and Escutcheons

Exposed piping passing through walls shall be fitted with premium plated cast brass escutcheons with fastening set screws similar to those of Mason Manufacturing Co., F & S Manufacturing Co. or Ritter Stern and similar Co.

## I. Pipe Supports and Hangers

- All supports and parts shall conform to the latest requirements of the ANSI Code for pressure piping B31.10 and ASME standard pressure to SP-50.
- Hangers shall be manufactured by Grinnell Corp. or approved equal.

- Pipe hangers, rods, inserts and clamps shall be of the type specified in the respective uses by the Underwriters' Laboratories.
- Unless otherwise specifically approved, hangers shall be of the type specified in the respective uses by the Underwriters' Laboratories.

Pipe Sizes	Max Hanger Spacing
1/2" to 1"	9 ft. o.c.
1-1/2" to 2-1/2"	9 ft. o.c.

## J. Valves

Type	Size	Pressure	Jenkins Fig. No.
Gate	Up to 2"	125 PSI	47U
Gate	Up to 2"	150 PSI	49U

- Balancing valves shall be non-lubricating type indicator, memory stop, 150 lb. Valves shall be Homestead Industries or approved equal.

## K. Pipe and Valve Identification

- Provide and affix a set of approved adhesive and direction of flow.
- Each set shall consist of one band on which the identification shall be printed in letters not less than 1 inch high.
- Bands shall be in colors as indicated below: Standard A-12.1.

## System

Auxiliary Cooling Water

Adhesive bands shall be W.H. Brady Company, Seton equal.

## Threaded Joints

Steel pipe threaded joints shall be made tight with joint compound or tape, placed on the male threads.

## CUTTING AND PATCHING

- Piping passing through walls shall have a trim or necessary for the installation of a sleeve secured with 1/2" in diameter larger than the outside diameter. Insulation passing through and of sufficient length to finish wall surfaces.
- Piping passing through concrete floors shall have a trim or necessary for the installation of a sleeve secured with 1/2" in diameter larger than the outside diameter. Insulation passing through and of sufficient length to finish wall surfaces.
- Annular spaces between piping and sleeves or concrete shall be packed with thermofiber and sealed to the walls and floors with a non-hardening compound. Uniseal or Duxseal as manufactured by Johns-Manville.

The Contractor shall provide the services of an air conditioning and hydronic testing specialist who specializes in heat ventilating and air conditioning systems. Perform all work in accordance with sheetmetal and air conditioning Contractors National Association (SMACNA).

## SUBMITTALS

Submit for approval three (3) sets of shop drawings of fire damper installations. Submit three (3) sets of shop drawings of exhaust fan, ceiling grilles, ceiling diffusers, linear blow registers, valves, accessories and three copies of

INTRADESIGN GROUP INC.  
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MECHANICAL SPECIFICATIONS

TELERATE SYSTEMS INC.  
ONE WORLD TRADE CENTER NY N.Y.